to perform the functions described herein. A processor can be a microprocessor, but in the alternative, the processor can be a controller, microcontroller, or state machine, combinations of the same, or the like. A processor can include electrical circuitry configured to process computer-executable instructions. In another embodiment, a processor includes an FPGA or other programmable device that performs logic operations without processing computer-executable instructions. A processor can also be implemented as a combination of computing devices, e.g., a combination of a DSP and a microprocessor, a plurality of microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration. Although described herein primarily with respect to digital technology, a processor may also include primarily analog components. For example, some or all of the signal processing algorithms described herein may be implemented in analog circuitry or mixed analog and digital circuitry. A computing environment can include any type of computer system, including, but not limited to, a computer system based on a microprocessor, a mainframe computer, a digital signal processor, a portable computing device, a device controller, or a computational engine within an appliance, to name a few.

[0062] Conditional language such as, among others, "can," "could," "might" or "may," unless specifically stated otherwise, are otherwise understood within the context as used in general to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without user input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment.

[0063] Disjunctive language such as the phrase "at least one of X, Y, or Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to present that an item, term, etc., may be either X, Y, or Z, or any combination thereof (e.g., X, Y, and/or Z). Thus, such disjunctive language is not generally intended to, and should not, imply that certain embodiments require at least one of X, at least one of Y, or at least one of Z to each be present.

[0064] Any process descriptions, elements or blocks in the flow diagrams described herein and/or depicted in the attached figures should be understood as potentially representing modules, segments, or portions of code which include one or more executable instructions for implementing specific logical functions or elements in the process. Alternate implementations are included within the scope of the embodiments described herein in which elements or functions may be deleted, executed out of order from that shown, or discussed, including substantially concurrently or in reverse order, depending on the functionality involved as would be understood by those skilled in the art.

[0065] Unless otherwise explicitly stated, articles such as "a" or "an" should generally be interpreted to include one or more described items. Accordingly, phrases such as "a device configured to" are intended to include one or more recited devices. Such one or more recited devices can also be collectively configured to carry out the stated recitations. For example, "a processor configured to carry out recitations A, B and C" can include a first processor configured to carry out recitation A working in conjunction with a second processor configured to carry out recitations B and C.

[0066] It should be emphasized that many variations and modifications may be made to the above-described embodiments, the elements of which are to be understood as being among other acceptable examples. All such modifications and variations are intended to be included herein within the scope of this disclosure and protected by the following claims.

What is claimed is:

1. An apparatus for measuring current flow through a wire, the apparatus comprising:
- a housing with an opening configured to receive a wire, wherein the opening corresponds to a target measurement zone for measuring a current flowing through the wire when the wire is positioned within the opening;
- a first pair of magnetic sensors within the housing and positioned such that a line between the magnetic sensors of the first pair is substantially tangential to the target measurement zone;
- a second pair of magnetic sensors within the housing and positioned such that a line between the magnetic sensors of the second pair crosses through the target measurement zone; and
- a hardware processor in communication with the first pair of magnetic sensors and the second pair of magnetic sensors, the hardware processor configured to derive a measure of the current flowing through the wire based on outputs from the first pair of magnetic sensors and the second pair of magnetic sensors.

2. The apparatus of claim **1**, wherein the first pair of magnetic sensors and the second pair of magnetic sensors are positioned to reduce an impact of one or more stray fields on the measure of the current flowing through the wire when the wire is positioned within the target measurement zone.

3. The apparatus of claim **1**, wherein the opening is orthogonal to a length of the wire when the wire is positioned within the opening.

4. The apparatus of claim **1**, wherein the target measurement zone is substantially circular.

5. The apparatus of claim **1**, wherein the first pair of magnetic sensors and the second pair of magnetic sensors are positioned to measure the current flowing through the wire with a threshold degree of accuracy when the wire is positioned within the target measurement zone.

6. The apparatus of claim **4**, wherein the threshold degree of accuracy comprises at least 99% accuracy over a 1 centimeter radius centered within the target measurement zone.

7. The apparatus of claim **1**, wherein the first pair of magnetic sensors comprise anisotropic magnetoresistance (AMR) sensors.

8. The apparatus of claim **1**, further comprising one or more additional pairs of magnetic sensors within the housing.

9. The apparatus of claim **8**, wherein a third pair of magnetic sensors is positioned such that a line between the third pair of magnetic sensors is substantially tangential to the target measurement zone, and a fourth pair of magnetic sensors is positioned such that a line between the fourth pair of magnetic sensors crosses through the target measurement zone.

10. The apparatus of claim **9**, wherein at least one magnetic sensor from the third pair of magnetic sensors or